PARKINSON'S
Excellence
Network

Emergency management of patients with Parkinson's

This guide is aimed at hospital staff who are involved in the emergency treatment of patients with Parkinson's. It covers important information and advice on observations, medication recommendations and complications.

When treating patients with Parkinson's, it's vital that you don't stop their Parkinson's medication.

Missing doses can cause serious complications, including acute akinesia, rare but potentially fatal neuroleptic-like malignant syndrome (NLMS) and dopamine agonist withdrawal syndrome (DAWS).

Delaying doses can make symptoms worse, including increased tremor, rigidity and loss of balance.

These issues can increase care needs and length of stay in hospital.

First steps:

- Get an accurate drugs list from the patient or those caring for them, including prescribed timings, doses and usual preparations. Keep same dose, preparation, delivery route and brand or generic.
- Check prescribed drugs against clinic letter or dispensing list on SystmOne for correct administration and timing.
- Dose timings may be different from usual ward drug rounds. Maintain patient's usual drug timings as delayed doses can worsen Parkinson's symptoms.
- Use emergency drug cupboard or contact on-call pharmacist to ensure enough medication.
- Patients with confusion or delirium may be taking drugs wrongly. Consult community pharmacist and Parkinson's specialist team if unsure.
- Write up first dose as stat prescription. All doses covering a 24-hour period should be prescribed.
- Support self-administration of medication where possible. Check hospital's self-administration policy.
- Only adjust prescribed medication routine after consulting Parkinson's specialist (if in the patient's best interest). If it is out of hours and the patient can't take their oral Parkinson's medications, consider an alternative delivery of Parkinson's medication (see below), and consult a Parkinson's specialist as soon as possible.
- Consider timing of operations and therapy sessions to enable maintenance of medication routine.
- For elective surgery, consider pre-operative and post-operative requirements. For example, if the patient is nil-by-mouth post-operatively, consider an alternative delivery of Parkinson's medication. This can include rotigotine patches or NG dispersible preparations.
- If patient is receiving end of life care, DO NOT stop Parkinson's medication. Convert to rotigotine patch if oral administration isn't possible.

Emergency observations if Parkinson's drugs are missed:

- check for increased tremor (note baseline)
- temperature
- respiratory rate
- blood pressure
- cognitive assessment (for example, 4AT rapid detection tool (**www.the4at.com**))
- swallow assessment
- check creatine kinase (CK) blood test if doses are missed, or might have been missed.

If patient can't take oral medication:

Treat underlying issue as a matter of priority.

Swallowing difficulties

- Refer to speech and language therapist (SLT) for urgent assessment and advice.
- Consider posture for effective swallow (for example, sitting upright with chin neutral).
- Consider placing tablets one at a time on teaspoon with soft foods or thickened fluids (such as yoghurt – if bitter, use sweetened foods or fluids).
- Never crush or split modified release preparations (CR, MR, XL or PR).
- Only break other tablets if scored.
- Consider dispersible or liquid versions of drug preparations and levodopa dose equivalents.

Nausea/vomiting

- Avoid metoclopramide (Maxolon) and prochlorperazine (Stemetil) (these can worsen Parkinson's symptoms and in some cases can be fatal).
- Consider oral or PR domperidone (Motilium) if there are no contraindications.
- Avoid giving to patients with cardiac problems as it can slightly increase risk of arrhythmia and sudden cardiac death.
- Note cyclizine and ondansetron can also be used post-operatively. Both can cause altered level of consciousness, confusion and vision problems.

Altered level of consciousness, confusion, agitation or hallucinations

- Check history of cognitive impairment. Think delirium and use the 4AT rapid detection tool (**www.the4at.com**).
- Check for underlying cause (such as infection, dehydration and constipation) and treat accordingly.
- Avoid haloperidol (Serenace, Haldol) and chlorpromazine (Largactil) and other antipsychotics (these can worsen Parkinson's symptoms). If needed, consider a benzodiazepine.

If patient still can't take next prescribed oral dose, consider:

Administration via NG/NJ/PEG tube

- Assess for any contraindications.
- Insert as per local protocol.

Administration via rotigotine patches (if unable to tolerate NG/NJ/PEG tube)

- Tell Parkinson's specialist as priority.
- Assess if rotigotine is appropriate as it could be contraindicated in delirium.

Preparing Parkinson's medication for NG/NJ/PEG tube use

- Priority is short-term management of Parkinson's with appropriate dopaminergic medication, such as levodopa (Madopar, Sinemet).
- For medication given in liquid form, flush tube afterwards to ensure complete administration and to prevent blockages.
- Return to usual medication routine as soon as clinically possible. If not possible, consult Parkinson's specialist about long term, non-oral administration of medications.

Equivalent doses of Parkinson's medication

To work out doses for your patient, use appropriate Parkinson's 'nil by mouth' drugs calculator at **www.parkinsons.org.uk/medication-dose-calculatorsnbm**

Nil-by-mouth (NBM) status with surgery

Post-operatively, patients may be NBM

- Patients can take oral medication with clear fluids up to two hours before elective surgery.
- If possible, put patients at start of operating lists to optimise medication.
- Prepare in pre-op clinic.
- Confirm timing of surgery with the anaesthetist. Regional anaesthesia (compared to general) allows continuation of usual medication.

Levodopa (main absorption site is the jejunum – NG recommended)

Co-beneldopa (Madopar)

- Use dispersible versions.
- For controlled-release (CR) doses, because of reduced bioavailability, convert to dispersible equivalent.
- Monitor as dose frequency may need altering depending on patient's clinical response.

Co-careldopa (Sinemet, Lecado, Apodespan, Caramet)

- Use dispersible co-beneldopa (using equivalent dosage of levodopa).
- For CR doses, use co-beneldopa dispersible equivalent.
- Regularly assess tremor, stiffness, discomfort and cognitive state.

Co-careldopa and entacapone (Stalevo, Sastravi, Stanek)

- Refer to drug calculator for all equivalents.
- Entacapone not licensed for use in enteral feeding systems – can be safely omitted temporarily (see MAO-B/COMT inhibitors).

Dopamine agonists

Pramipexole (Mirapexin)

Ropinirole (Requip, Ralnea, Roponer, Ippinia, Repinex)

- Assess rotigotine is appropriate as it could be contraindicated in delirium. A lower dose may be appropriate.
- Not licensed in enteral feeding systems. Consider rotigotine patches as substitute.

MAO-B/COMT inhibitors

MAO-B inhibitors:

Selegiline (Eldepryl, Zelapar)

- Use Eldepryl (as available in liquid form) – for NJ tubes, dilute with equal volume of water just before use.

Rasagiline (Azilect)

COMT inhibitors:

Safinamide (Xadago)

Opicapone (Ongentys)

Entacapone (Comtess)

- Not licensed for use in enteral feeding systems – can usually be safely omitted temporarily.
- Observe symptoms regularly – report changes.

Glutamate antagonist

Amantadine

Use liquid version.

Anticholinergics

Procyclidine (Kemadrin)

Trihexyphenidyl (Benzhexol)

- Not used as a first line treatment for Parkinson's. Can help some symptoms, such as tremor, rigidity and speech difficulties, but may only have a mild effect.
- Can make some Parkinson's symptoms worse and cause side effects, including memory problems, constipation and urinary retention.

Calculating equivalent levodopa dosages for rotigotine patches

- Use appropriate Parkinson's medication calculator at **www.parkinsons.org.uk/medication-dose-calculators**
- Round to nearest 2mg (to max of 16mg) and prescribe as 24-hour patch.
- **DO NOT** cut patches – available as 2mg/4mg/6mg/8mg patches (can use more than one patch).
- Application site should be rotated every 24 hours.
- **DO NOT** use if patient is having MRI scan or cardioversion. Patch must be removed before both procedures as it contains aluminium.

Treat each patient individually.

- If there's increased stiffness or slowness, increase their dose and review daily.
- If increased confusion or hallucinations are observed, decrease dose and review daily.
- If using adjusted levodopa equivalent daily dosage (LEDD) >350mg, use rotigotine 16mg. Also consult specialist regarding possible administration of apomorphine as a continuous subcutaneous (subcut) infusion.

Is patient taking apomorphine (APO-go), Duodopa infusion or using deep brain stimulation (DBS)?

Apomorphine (APO-go)

- A dopamine agonist administered via an intermittent subcutaneous injection or a pump. It's not morphine-based or an analgesic. Not a controlled drug.
- Apomorphine routines need to be continued at the prescribed dose and frequency (injection) or rate (pump) – do not change pump settings unless requested by a Parkinson's specialist.
- Check if patient usually self-administers apomorphine and is able to continue this during hospital stay. Ensure they have the relevant equipment, including APO-Go pump, pre-filled syringes and syringe connectors.
- For support, contact the APO–go helpline on **0844 880 1327**, the Dacepton helpline on **0800 254 0176**, or contact a specialist (for example, a Parkinson's nurse).

Duodopa infusion

- Patients on a Duodopa routine need to be continued at the prescribed rate (providing gastric emptying isn't delayed and PEJ tube is patent).
- If not, discontinue and start on rotigotine patches.
- Start emergency oral drugs. All patients will have a prescription.
- For support, call the Duodopa helpline on **0800 458 4410**.

Deep Brain Stimulation (DBS)

- Patients on DBS need to be maintained on usual medication routine.
- Patients should have an ID card with model number and contact details.
- Oral drug list should be available if DBS fails so patient canrevert back.

Complications and risks during acute admissions:

- delirium (acute confusion due to drugs or infection)
- chest infection, especially aspiration pneumonia
- urinary tract infections (UTIs)
- postural hypotension and falls – check meds and BP lying and sitting then standing
- constipation. Search for underlying cause and manage promptly and appropriately.
- NLMS if doses of Parkinson's medication are missed

If in doubt, contact your pharmacist. (Some hospitals have a specialist Parkinson's pharmacist).

References

1. https://www.nice.org.uk/guidance/ng71/chapter/Recommendations

2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5737245

3. https://www.nice.org.uk/guidance/qs164/chapter/quality-statement-4-levodopa-in-hospital-or-a-care-home#quality-statement-4

4. https://doi.org/10.1016/j.prdoa.2022.100153

5. https://www.nice.org.uk/guidance/ng5/chapter/1-Recommendations#medicines-reconciliation

6. https://secure.library.leicestershospitals.nhs.uk/PAGL/Shared%20Documents/Parkinson's%20Disease%20Medication%20UHL%20Guideline.pdf

7. https://www.nice.org.uk/guidance/ng71/chapter/Recommendations#pharmacological-management-of-motor-symptoms

8. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5296489

9. https://www.nice.org.uk/guidance/ng5/chapter/1-Recommendations#self-management-plans

10. https://link.springer.com/article/10.1007/s40261-021-01054-1

11. https://www.sps.nhs.uk/articles/advising-on-missed-or-delayed-doses-of-medicines

12. https://doi.org/10.2147/PPA.S59150

13. https://secure.library.leicestershospitals.nhs.uk/PAGL/Shared%20Documents/Parkinson's%20Disease%20Medication%20UHL%20Guideline.pdf

14. https://www.nice.org.uk/guidance/ng180/chapter/Recommendations#preoperative-care

15. https://www.sps.nhs.uk/articles/parkinsons-disease-medicines-formulations-for-adults-with-swallowing-difficulties

16. https://bnf.nice.org.uk/drugs/metoclopramide-hydrochloride/#contra-indications

17. https://bnf.nice.org.uk/drugs/prochlorperazine/#contra-indications

18. https://bnf.nice.org.uk/treatment-summaries/parkinsons-disease/#drug-treatment

19. https://bnf.nice.org.uk/drugs/domperidone

20. https://www.nhs.uk/medicines/cyclizine/about-cyclizine

21. https://bnf.nice.org.uk/drugs/ondansetron/#indications-and-dose

22. https://bnf.nice.org.uk/drugs/haloperidol/#contra-indications

23. https://bnf.nice.org.uk/drugs/chlorpromazine-hydrochloride/#contra-indications

24. https://cks.nice.org.uk/topics/parkinsons-disease/management/confirmed-parkinsons-disease/#constipation-nausea-vomiting

25. https://tam.nhsh.scot/therapeutic-guidelines/therapeutic-guidelines/nervous-system/parkinsons-disease/parkinsons-disease-inpatient-management-inc-nil-by-mouth

26. https://patient.info/doctor/enteral-feeding

27. https://bnf.nice.org.uk/drugs/rotigotine/#side-effects

28. https://academic.oup.com/ageing/article/46/suppl_2/ii1/3950214

29. https://www.nice.org.uk/guidance/ng180/chapter/Recommendations#preoperative-care

30. https://secure.library.leicestershospitals.nhs.uk/PAGL/Shared%20Documents/Parkinson's%20Disease%20Medication%20UHL%20Guideline.pdf

31. https://www.nlg.nhs.uk/resources/having-a-regional-anaesthetic

32. https://tam.nhsh.scot/therapeutic-guidelines/therapeutic-guidelines/nervous-system/parkinsons-disease/parkinsons-disease-alternative-ways-to-administer-medication

33. https://www.medicinescomplete.com/#/content/bnf/_267081483

34. https://www.medicinescomplete.com/#/content/bnf/_534162970?hspl=careldopa

35. https://www.medicinescomplete.com/#/content/bnf/_298287024

36. https://bnf.nice.org.uk/drugs/entacapone/#indications-and-dose

37. https://www.medicinescomplete.com/#/content/bnf/_520009073

38. https://bnf.nice.org.uk/drugs/ropinirole/#medicinal-forms

39. https://www.nhs.uk/conditions/parkinsons-disease/treatment/#:~:text=this%20complication%20occurs.-,Monoamine%20oxidase%2DB%20inhibitors,B)%2C%20increasing%20dopamine%20levels

40. https://bnf.nice.org.uk/drugs/selegiline-hydrochloride

41. https://bnf.nice.org.uk/drugs/rasagiline/medicinal-forms

42. https://www.medicinescomplete.com/#/content/bnf/_291880680?hspl=Safinamide

43. https://www.medicinescomplete.com/#/content/bnf/_145940342?hspl=Opicapone

44. https://www.medicinescomplete.com/#/content/bnf/_631998439?hspl=Amantadine%20hydrochloride

45. https://www.nice.org.uk/guidance/ng71/chapter/Recommendations#pharmacological-management-of-motor-symptoms

46. https://bnf.nice.org.uk/drugs/procyclidine-hydrochloride/#drug-action

47. https://bnf.nice.org.uk/drugs/trihexyphenidyl-hydrochloride/#drug-action

48. https://www.medicinescomplete.com/#/content/bnf/_133540746

49. https://www.medicines.org.uk/emc/product/8083/smpc#gref

50. https://bnf.nice.org.uk/drugs/rotigotine

51. https://bnf.nice.org.uk/drugs/apomorphine-hydrochloride/#indications-and-dose

52. https://secure.library.leicestershospitals.nhs.uk/PAGL/Shared%20Documents/Parkinson's%20Disease%20Medication%20UHL%20Guideline.pdf

53. https://www.medicines.org.uk/emc/product/6231/smpc#gref

54. https://www.medtronic.com/uk-en/healthcare-professionals/therapies-procedures/neurological/deep-brain-stimulation/indications-safety-warnings.html

55. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5737245

56. https://www.cambridge.org/core/journals/canadian-journal-of-neurological-sciences/article/pragmatic-approach-to-the-perioperative-management-of-parkinsons-disease/98B774D78EB55830F0402FF28082AF4E

57. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4998413

58. https://www.medicines.org.uk/emc/product/186/smpc#gref

59. https://www.apo-go.com/hcp/apo-go-pen

60. https://www.apo-go.com/hcp/apo-go-infusion

61. https://www.medicines.org.uk/emc/product/6231/smpc#gref

62. https://www.medtronic.com/uk-en/healthcare-professionals/therapies-procedures/neurological/deep-brain-stimulation/indications-safety-warnings.html

63. https://cks.nice.org.uk/topics/parkinsons-disease/background-information/complications

The Parkinson's Excellence Network connects health and social care professionals to share best practice, access resources and education, and drive improvements to services for people with Parkinson's and their families.

Get involved at **parkinsons.org.uk/professionals**

PARKINSON'S
Excellence Network

Last updated: July 2023. Next review date: 2026. Order code: INFOB0011.